CLAIMS

What is claimed is:

1. A method of supplying bias comprising:

generating, by a reference bias source, a reference bias signal having a desired bias value;

calibrating an adjustable master bias source by sending the adjustable master bias source a control code which causes the adjustable master bias source to generate a master bias signal having the desired bias value; and

calibrating first and second adjustable slave bias sources by sending the control code to the first and second adjustable slave bias sources to cause the first and second adjustable slave bias sources to generate respective first and second slave bias signals having the desired bias value.

2. The method of claim 1 wherein the desired bias value is a voltage.

3. The method of claim 1 wherein the desired bias value is a current.

4. The method of claim 1 further including varying the control code until a control code is found at which the adjustable master bias source has the desired bias value.

5. The method of claim 1 further including coupling the first and second adjustable slave bias sources to respective first and second loads to provide bias thereto.

6. The method of claim 5 wherein the first and second loads are RF circuits.

7. The method of claim 1 further including generating control codes by a digital controller.

8. The method of claim 7 further including transmitting, by the digital controller, control codes over a calibration bus coupling the digital controller to the reference bias source, the adjustable master bias source and the first and second adjustable slave bias sources.

9. The method of claim 1 wherein the reference bias source is accurate but noisy.

10. The method of claim 1 wherein the adjustable master bias source has low noise at an output of the adjustable bias source.

11. The method of claim 1 wherein the first and second adjustable slave bias sources have low noise at their respective outputs.

12. The method of claim 1 wherein a master load is coupled to the adjustable master bias source.

13. The method of claim 1 wherein a control code is reserved for the adjustable master bias source and is not supplied to first and second adjustable slave bias sources.

14. The method of claim 1 wherein the control code is selected to cause the first and second adjustable slave bias sources to have a modified bias value which is different from the desired bias value of the adjustable master bias source.

15. The method of claim 14 wherein the modified bias value is offset with respect to the desired bias value.

16. The method of claim 1 wherein an old control code is used as the control code.

17. A method of supplying bias comprising:

generating, by a first reference bias source, a first bias signal having a desired first bias value;

generating, by a second reference bias source, a second bias signal having a desired second bias value;

calibrating a first adjustable master bias source by sending the first adjustable master bias source a first control code which causes the first adjustable master bias source to generate a first master bias signal having the desired first bias value;

calibrating a second adjustable master bias source by sending the second adjustable master bias source a second control code which causes the second adjustable master bias source to generate a second master bias signal having the desired second bias value; and

calibrating first and second adjustable slave bias sources by sending the first and second control codes to the first and second adjustable slave bias sources, respectively, to cause the first and second adjustable slave bias sources to having the desired first and second bias values, respectively.

18. The method of claim 17 wherein the desired first bias value is a voltage.

19. The method of claim 17 wherein the desired second bias value is a current.

20. The method of claim 17 further including varying the first control code sent to the first adjustable bias source until a control code is found at which the first adjustable master bias source has the desired first bias value.

21. The method of claim 17 further including varying the second control code sent to the second adjustable bias source until a control code is found at which the second adjustable master bias source has the desired second bias value.

22. The method of claim 17 further including coupling the first and second adjustable slave bias sources to respective first and second loads to provide bias thereto.

23. The method of claim 22 wherein the first and second loads are RF circuits.

24. The method of claim 17 further including generating the control codes by a digital controller.

25. The method of claim 24 further including transmitting, by the digital controller, control codes over a calibration bus coupling the digital controller to the first and second reference bias sources, the first and second adjustable master bias sources and the first and second adjustable slave bias sources.

26. The method of claim 17 wherein the first and second reference bias sources are accurate but noisy.

27. The method of claim 17 wherein the first and second adjustable master bias sources have low noise at their respective outputs.

28. The method of claim 17 wherein the first and second adjustable slave bias sources have low noise at their respective outputs.

29. The method of claim 17 wherein a master load is coupled to the adjustable master bias source.

30. The method of claim 17 wherein a control code is reserved for the adjustable master bias source and is not supplied to first and second adjustable slave bias sources.

31. The method of claim 17 wherein the control code is selected to cause the first and second adjustable slave bias sources to have a modified bias value which is different from the desired bias value of the adjustable master bias source.

32. The method of claim 31 wherein the modified bias value is offset with respect to the desired bias value.

33. The method of claim 17 wherein an old control code is used as the control code.

34. A method of supplying bias comprising:

generating, by a reference bias source, a reference bias signal having a desired bias value;

calibrating an adjustable master bias source by sending the adjustable master bias source a control code which causes the adjustable master bias source to generate a master bias signal having the desired bias value; and

calibrating an adjustable slave bias source by sending the control code to the adjustable slave bias source to cause adjustable slave bias source to generate a slave bias signal having the desired bias value.

35. The method of claim 34 wherein the desired bias value is a voltage.

36. The method of claim 34 wherein the desired bias value is a current.

37. The method of claim 34 further including varying the control code until a control code is found at which the adjustable master bias source has the desired bias value.

38. The method of claim 34 further including coupling the adjustable slave bias source to a first load to provide bias thereto.

39. The method of claim 34 further including generating control codes by a digital controller.

40. The method of claim 34 wherein the reference bias source is accurate but noisy.

41. The method of claim 34 wherein the adjustable master bias source has low noise at an output of the adjustable bias source.

42. The method of claim 34 wherein the adjustable slave bias source has low noise at its output.

43. The method of claim 34 wherein a master load is coupled to the adjustable master bias source.

44. The method of claim 34 wherein a control code is reserved for the adjustable master bias source and is not supplied to the adjustable slave bias source.

45. The method of claim 34 wherein the control code is selected to cause the adjustable slave bias source to have a modified bias value which is different from the desired bias value of the adjustable master bias source.

46. The method of claim 45 wherein the modified bias value is offset with respect to the desired bias value.

47. The method of claim 34 wherein an old control code is used as the control code.

48. A bias system comprising:

a calibration bus;

a reference bias source, coupled to the calibration bus, that generates a bias signal having a desired bias value;

an adjustable master bias source, coupled to the calibration bus, that receives a control code which causes the adjustable master bias source to generate a master bias signal having the desired bias value; and

first and second adjustable slave bias sources, coupled to the calibration bus, that receive the control code to cause the first and second adjustable slave bias sources to generate respective first and second slave bias signals having the desired bias value.

49. The bias system of claim 48 further including a controller, coupled to the calibration bus, that generates the control code.

50. The bias system of claim 49 wherein the controller varies the control code until the adjustable master bias source generates a master bias signal having the desired bias value.

51. The bias system of claim 48 wherein the desired bias value is a voltage.

52. The bias system of claim 48 wherein the desired bias value is a current.

53. The bias system of claim 48 wherein the reference bias source is accurate but noisy.

54. The bias system of claim 48 wherein the adjustable master bias source has low noise at an output of the adjustable bias source.

55. The bias system of claim 48 wherein the first and second adjustable slave bias sources have low noise at their respective outputs.

56. The bias system of claim 48 wherein a master load is coupled to the adjustable master bias source.

57. The bias system of claim 48 wherein a control code is reserved for the adjustable master bias source and that control code is not supplied to first and second adjustable slave bias sources.

58. The bias system of claim 48 wherein the control code is selected to cause the first and second adjustable slave bias sources to have a modified bias value which is different from the desired bias value of the adjustable master bias source.

59. The bias system of claim 58 wherein the modified bias value is offset with respect to the desired bias value.

60. The bias system of claim 48 wherein an old control code is used as the control code.

61. A bias system comprising:

a calibration bus;

first and second reference bias sources, coupled to the calibration bus, that generate first and second bias signals, respectively, the first and second bias signals having first and second desired bias values, respectively;

first and second adjustable master bias sources, coupled to the calibration bus, that receive first and second control codes, respectively, which cause the first and second adjustable master bias sources to respectively generate a first master bias signal having the first desired bias value and a second master bias signal having the second desired bias value; and

first and second adjustable slave bias sources, coupled to the calibration bus, that receive the first and second control codes, respectively, to cause the first and second adjustable slave bias sources to respectively generate a first slave bias signal having the first desired bias value and a second slave bias signal having the second desired slave bias value.

62. The bias system of claim 61 further including a controller, coupled to the calibration bus, that generates control codes and sending control codes over the calibration bus.

63. The bias system of claim 62 wherein the controller varies the control code received by the first adjustable master bias source until the first control code is found which causes the first adjustable master bias source to have the first desired bias value.

64. The bias system of claim 63 wherein the controller varies the control code received by the second adjustable master bias source until the second control code is found which causes the second adjustable master bias source to have the second desired bias value.

65. The bias system of claim 62 wherein the controller sends the first and second control codes over the calibration bus to the first and second adjustable slave bias sources, respectively.

66. The bias system of claim 61 wherein the desired bias value is a voltage.

67. The bias system of claim 61 wherein the desired bias value is a current.

68. The bias system of claim 61 wherein the first and second reference bias sources are accurate but noisy.

69. The bias system of claim 61 wherein the first and second adjustable master bias sources have low noise at their respective outputs.

70. The bias system of claim 61 wherein the first and second adjustable slave bias sources have low noise at their respective outputs.

71. A bias system comprising:

a calibration bus;

a reference bias source, coupled to the calibration bus, that generates a bias signal having a desired bias value;

an adjustable master bias source, coupled to the calibration bus, that receives a control code which causes the adjustable master bias source to generate a master bias signal having the desired bias value; and

an adjustable slave bias source, coupled to the calibration bus, that receives the control code to cause the adjustable slave bias source to generate a slave bias signal having the desired bias value.

72. The bias system of claim 71 further including a controller, coupled to the calibration bus, that generates the control code.

73. The bias system of claim 72 wherein the controller varies the control code until the adjustable master bias source generates a master bias signal having the desired bias value.

74. The bias system of claim 71 wherein the desired bias value is a voltage.

75. The bias system of claim 71 wherein the desired bias value is a current.

76. The bias system of claim 71 wherein the reference bias source is accurate but noisy.

77. The bias system of claim 71 wherein the adjustable master bias source has low noise at an output of the adjustable bias source.

78. The bias system of claim 71 wherein the adjustable slave bias source has low noise at its output.

79. An integrated circuit device comprising:

a calibration bus;

a reference bias source, coupled to the calibration bus, that generates a bias signal having a desired bias value;

an adjustable master bias source, coupled to the calibration bus, that receives a control code which causes the adjustable master bias source to generate a master bias signal having the desired bias value;

first and second adjustable slave bias sources, coupled to the calibration bus, that receive the control code to cause the first and second adjustable slave bias sources to generate respective first and second slave bias signals having the desired bias value; and

first and second loads coupled to the first and second adjustable slave bias sources, respectively.

80. The integrated circuit device of claim 79 further including a controller, coupled to the calibration bus, that generates the control code.

81. The integrated circuit device of claim 80 wherein the controller varies the control code until the adjustable master bias source exhibits a master bias signal having the desired bias value.

82. The integrated circuit device of claim 79 wherein the desired bias value is a voltage.

83. The integrated circuit device of claim 79 wherein the desired bias value is a current.

84. The integrated circuit device of claim 79 wherein the first and second loads are RF circuits.

85. The integrated circuit device of claim 79 wherein a master load is coupled to the adjustable master bias source.

86. The integrated circuit device of claim 79 wherein a control code is reserved for the adjustable master bias source and that control code is not supplied to first and second adjustable slave bias sources.

87. The integrated circuit device of claim 79 wherein the control code is selected to cause the first and second adjustable slave bias sources to have a modified bias value which is different from the desired bias value of the adjustable master bias source.

88. The integrated circuit device of claim 87 wherein the modified bias value is offset with respect to the desired bias value.

89. The integrated circuit device of claim 79 wherein an old control code is used as the control code.

90. An integrated circuit device comprising:

a calibration bus;

first and second reference bias sources, coupled to the calibration bus, that generate first and second bias signals, respectively, the first and second bias signals having first and second desired bias values, respectively;

first and second adjustable master bias sources, coupled to the calibration bus, that receive first and second control codes, respectively, which cause the first and second adjustable master bias sources to respectively generate a first master bias signal having the first desired bias value and a second master bias signal having the second desired bias value;

first and second adjustable slave bias sources, coupled to the calibration bus, that receive the first and second control codes, respectively, to cause the first and second adjustable slave bias sources to respectively generate a first slave bias signal having the first desired bias value and a second slave bias signal having the second desired slave bias value; and

first and second loads coupled to the first and second adjustable slave bias sources, respectively.

91. The integrated circuit device of claim 90 further including a controller, coupled to the calibration bus, that generates control codes and sends control codes over the calibration bus.

92. The integrated circuit device of claim 91 wherein the controller varies the control code received by the first adjustable master bias source until the first control code is found which causes the first adjustable master bias source to have the first desired bias value.

93. The integrated circuit device of claim 91 wherein the controller varies the control code received by the second adjustable master bias source until the second control code is found which causes the second adjustable master bias source to have the second desired bias value.

94. The integrated circuit device of claim 91 wherein the controller sends the first and second control codes over the calibration bus to the first and second adjustable bias source, respectively.

95. The integrated circuit device of claim 90 wherein the desired bias value is a voltage.

96. The integrated circuit device of claim 90 wherein the desired bias value is a current.